

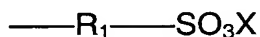
AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

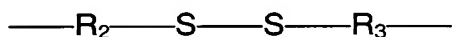
LISTING OF CLAIMS:

1. (Previously Presented) A composite electrolyte membrane comprising a modified silica in which silicon atoms have substituents as represented by formula 1 and formula 2; and a cation exchange group-containing polymer:

Formula 1



Formula 2



wherein, R₁ is an alkylene group with 2-7 carbon atoms, X is a hydrogen atom or an alkali metal, R₂ and R₃ are each independently an alkylene group with 2-7 carbon atoms.

2. (Original) The composite electrolyte membrane according to claim 1, wherein the content of the modified silica is 2 to 20% by weight.

3. (Previously Presented) The composite electrolyte membrane according to claim 1, wherein the modified silica has a grain size of about 2 to about 10 nm.

4. (Original) The composite electrolyte membrane according to claim 1, wherein the cation exchange group in the polymer is selected from a sulfonate group, a carboxyl group, a phosphate group, an imide group, a sulfonimide group, and a sulfonamide group.

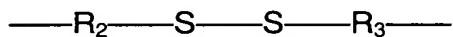
5. (Previously Presented) The composite electrolyte membrane according to claim 1, wherein the cation exchange group-containing polymer is a highly fluorinated polymer which has a sulfonate group as a cation exchange group on one end of a side chain, and in which fluorine atoms amount to at least 90% of a total number of fluorine and hydrogen atoms bound to carbon atoms of backbone and side chains of the polymer.

6. (Previously Presented) A fuel cell comprising a cathode; an anode; and an electrolyte membrane being placed between the cathode and the anode, the electrolyte membrane being a composite electrolyte membrane comprising a modified silica in which silicon atoms have substituents as represented by formula 1 and formula 2; and a cation exchange group-containing polymer:

Formula 1



Formula 2



wherein, R_1 is an alkylene group with 2-7 carbon atoms, X is a hydrogen atom or an alkali metal, R_2 and R_3 are each independently an alkylene group with 2-7 carbon atoms.

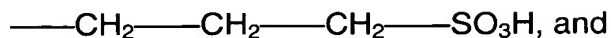
7. (Previously Presented) The fuel cell according to claim 6, wherein the content of the modified silica is 2 to 20% by weight.

8. (Previously Presented) The fuel cell according to claim 6, wherein the modified silica has a grain size of about 2 to about 10 nm.

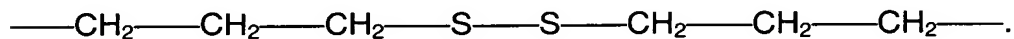
9. (Previously Presented) The fuel cell according to claim 6, wherein the cation exchange group in the polymer is selected from a sulfonate group, a carboxyl group, a phosphate group, an imide group, a sulfonimide group, and a sulfonamide group.

10. (Previously Presented) The fuel cell according to claim 6, wherein the cation exchange group-containing polymer is a highly fluorinated polymer which has a sulfonate group as a cation exchange group on one end of a side chain, and in which fluorine atoms amount to at least 90% of a total number of fluorine and hydrogen atoms bound to carbon atoms of backbone and side chains of the polymer.

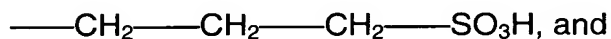
11. (Previously Presented) The composite electrolyte according to claim 1, wherein Formula 1 is



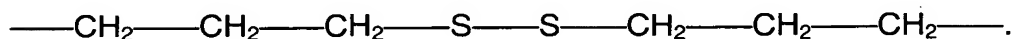
wherein Formula 2 is



12. (Previously Presented) The fuel cell according to claim 6, wherein Formula 1 is



wherein Formula 2 is



13. (Previously Presented) A fuel cell comprising:

a cathode;

an anode; and

a composite electrolyte membrane comprising:

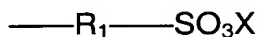
a cation exchange polymer; and

a modified silica, wherein the modified silica comprises silicon atoms bonded to a propane sulfonates group and a disulfide group.

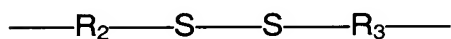
14. (Previously Presented) The fuel cell according to claim 13, wherein the modified silica comprises silicon atoms bonded to a propane sulfonates group on one side of the modified silica and a disulfide group on another side of the modified silica.

15. (Currently Amended) The fuel cell according to claim 13, wherein the propane sulfonates group is represented by Formula 1 and the disulfide group is represented by Formula 2:

Formula 1



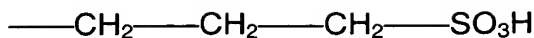
Formula 2



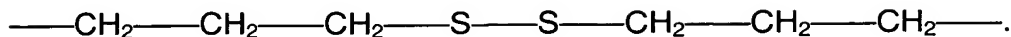
wherein R_1 is an alkylene group with 3 2-7 carbon atoms, X is a hydrogen atom or an alkali metal, R_2 and R_3 are each independently an alkylene group with 2-7 carbon atoms.

16. (Previously Presented) The fuel cell according to claim 13, wherein the propane sulfonates group is represented by Formula 1 and the disulfide group is represented by Formula 2:

Formula 1



Formula 2



17. (Previously Presented) The fuel cell according to claim 13, wherein the cation exchange group in the polymer is selected from a sulfonate group, a carboxyl group, a phosphate group, an imide group, a sulfonimide group, and a sulfonamide group.

18. (Previously Presented) The fuel cell according to claim 13, wherein the cation exchange group-containing polymer is a highly fluorinated polymer which has a sulfonate group as a cation exchange group on one end of the side chain, and in which fluorine atoms amount to at least 90% of the total number of fluorine and hydrogen atoms bound to carbon atoms of backbone and side chains of the polymer.

19. (Previously Presented) The fuel cell according to claim 13, wherein the composite electrolyte membrane comprises about 2 wt% to about 20 wt% modified silica.

20. (Cancelled)

21. (New) The composite electrolyte membrane according to claim 1, wherein the sulfonate group of formula 1 acts to improve ionic conductivity of the electrolyte membrane and the disulfide group of formula 2 acts to prevent the swelling of the electrolyte membrane.